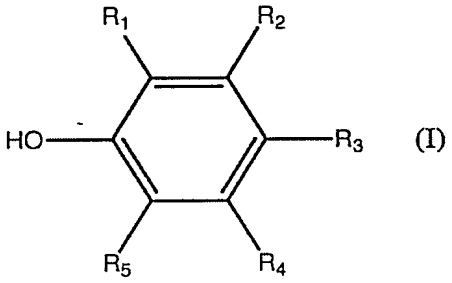
Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1–34. (Canceled)

35. (Currently Amended) A clathrate compound prepared by a method of ~~reacting~~ mixing an organic compound with a phenol derivative represented by Formula (I)



(I)

wherein:

R_1 and R_3 are independently selected from $-SO_2-Y$ and $-CO-Z$;

R_2, R_4, and R_5 are independently selected from the group consisting of hydrogen, halogen, alkyl having 1 to 4 carbons, alkenyl having 2 to 4 carbons, alkoxy having 1 to 4 carbons, $-SO_2-Y$, and $-CO-Z$;

Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

Z is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, hydroxyl, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

the organic compound is selected from the group consisting of:

methanol, ethanol, isopropanol, n-butanol, n-octanol, 2-ethylhexanol, allyl alcohol, propargyl alcohol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, cyclohexanediol, 2-

bromo-2-nitropropane-1,3-diol, 2,2-dibromo-2-nitro ethanol, and 4-chlorophenyl-3-iodopropargyl formal;

formaldehyde, acetaldehyde, n-butylaldehyde, propionaldehyde, benzaldehyde, phthalaldehyde, alpha -bromocynnamaldehyde, and phenylacetaldehyde;

ketones;

acetonitrile, acrylonitrile, n-butylonitrile, malononitrile, phenylacetonitrile, benzonitrile, cyanopyridine, 2,2-dibromomethylglutaronitrile, 2,3,5,6-tetrachloroisophthalonitrile, 5-chloro-2,4,6-trifluoroisophthalonitrile, and 1,2-dibromo-2,4-dicyanobutane;

diethyl ether, dibutyl ether, tetrahydrofuran, dioxane, tetrahydropyran, dioxolane, and trioxane;

methyl acetate, ethyl acetate, butyl acetate, n-heptyl acetate, and bis-1,4-bromoacetoxy-2-butene;

benzene sulfone amide;

N-methyl formamide, N,N-dimethyl formamide, dicyane diamide, dibromonitrile propionamide, 2,2-dibromo-3-nitrilo propionamide, and N,N-diethyl-m-toluamide;

dichloromethane, chloroform, dichloroethylene, and tetrachloroethylene;

morphorine;

phenol, cresol, resorcinol, and p-chloro-m-cresol;

carboxylic acids and thiocarboxylic acids;

sulfaminic acid;

thiocarbamic acid;

thiosemicarbazide;

urea, phenylurea, diphenylurea, thiourea, phenylthiourea, diphenylthiourea, and N,N-dimethyldichlorophenylurea;

isothiourea;

sulfonylurea;

thiophenol, allyl mercaptan, n-butyl mercaptan, and benzyl mercaptan;

benzyl sulfide and butyl methyl sulfide;

dibutyl disulfide, dibenzyl disulfide, and tetramethylthiuram disulfide;

dimethyl sulfoxide, dibutyl sulfoxide, and dibenzyl sulfoxide;

dimethyl sulfone, phenyl sulfone, phenyl-(2-cyano-2-chlorovinyl) sulfone, hexabromodimethyl sulfone, and diiodomethylparatolyl sulfone;

benzene, toluene, and xylene;

butyl isocyanate, cyclohexyl isocyanate, and phenyl isocyanate;

methylene bisthiocyanate and methylene bisisothiocyanate;

tris(hydroxymethyl)nitromethane;

ammonia, methylamine, ethylamine, propylamine, butylamine, pentylamine, hexylamine, allylamine, hydroxylamine, ethanolamine, benzylamine, ethylenediamine, 1,2-propanediamine, 1,3-propanediamine, 1,4-butanediamine, 1,5-pentanediamine, 1,6-hexanediamine, diethylenetriamine, triethylenetetramine, tetraethylenepentamine, dipropylenediamine, N-N-dimethylethylenediamine, N,N'-dimethylethylenediamine, N,N-dimethyl-1,3-propanediamine, N-ethyl-1,3-propanediamine, trimethylhexamethylenediamine, alkyl-t-monoamine, menthanediamine, isophoronediamine, guanidine, and N-(2-hydroxypropyl)amino methanol;

cyclohexylamine, cyclohexanediamine, bis(4-aminocyclohexyl)methane, pyrrolidine, azetidine, and piperidine;

piperadine, N-aminoethylpiperadine, N,N'-dimethylpiperadine, and pyrroline;

aniline, N-methylaniline, N,N-dimethylaniline, o-phenylenediamine, m-phenylenediamine, p-phenylenediamine, diaminodiphenylmethane, diaminodiphenyl sulfone, and m-xylenediamine;

imidazoles;

pyrrole, pyridine, picoline, pyrazine, pyridazine, pyrimidine, pyrazole, triazole, benzotriazole, triazine, tetrazole, purine, indole, quinoline, isoquinoline, carbazole, imidazoline, oxazole, piperine, pyrimidine, piridazine, benzimidazole, indazole, quinazoline, quinoxaline, phthalimide, adenine, cytosine, guanine, uracil, 2-methoxycarbonylbenzimidazole, 2,3,5,6-tetrachloro-4-methanesulfonylpyridine, 2,2-dithio-bis-(pyridine-1-oxide), N-methylpyrrolidone, 2-benzimidazole, methyl carbamate, sodium 2-pyridinethiol-1-oxide, hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine, hexahydro-1,3,5-triethyl-s-triazine, 2-methylthio-4-t-butylamino-6-cyclopropylamino-s-triazine, N-(fluorodichloromethylthio)phthalimide, 1-bromo-3-chloro-5,5-dimethylhydantoin, 2-methoxycarbonylbenzimidazole, and 2,4,6-trichlorophenylmaleimide;

furan, furfuryl alcohol, tetrahydrofurfuryl alcohol, furfurylamine, pyrane, coumarin, benzofuran, xanthene, and benzodioxane;

oxazole, isooxazole, benzoxazole, benzoisooxazole, 5-methyloxazolidine, 4-(2-nitrobutyl)morpholine, and 4,4'-(2-ethyl-2-nitrotrimethylene)dimorpholine;

thiophene, 3,3,4,4-tetrahydrothiophene-1,1-dioxide, 4,5-dichloro-1,2-dithiolan-3-one, 5-chrolo-4-phenyl-1,2-dithiolan-3-one, and 3,3,4,4-tetrachlorotetrahydrothiophene-1,1-dioxide;

thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-

benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole, and 2-thiocyanomethylbenzothiazole; and

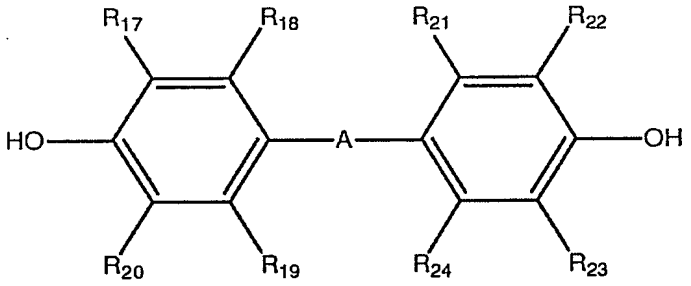
1,3-dimethyl-2-imidazolidinone;

wherein:

the organic compound and phenol derivative are ~~reacted~~ mixed under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host compound and the organic compound being a guest compound; and

the host and guest compounds are non-covalently bonded to each other, and when the host and guest compounds are not bonded to each other, they are able to exist stably on their own.

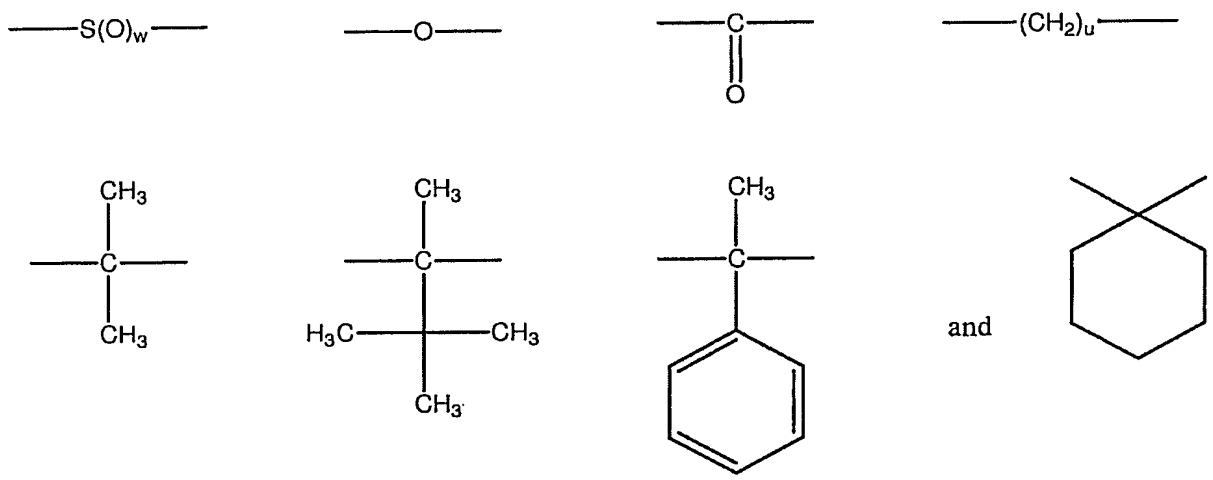
36. (Currently Amended) A clathrate compound prepared by a method of ~~reacting~~ mixing an organic compound with a phenol derivative represented by Formula (IV):



(IV)

wherein

A is selected from the group consisting of:



w is 0, 1 or 2;

u is 0 or 1;

R_{17} and R_{22} are independently selected from $-SO_2-Y$ and $-CO-Z$;

R_{18}-R_{21}, R_{23}, and R_{24} are independently selected from the group consisting of hydrogen, halogen, alkyl having 1 to 4 carbons, alkenyl having 2 to 4 carbons, alkoxy having 1 to 4 carbons, $-SO_2-Y$, and $-CO-Z$;

Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

Z is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, hydroxyl, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

the organic compound is selected from the group consisting of:

methanol, ethanol, isopropanol, n-butanol, n-octanol, 2-ethylhexanol, allyl alcohol, propargyl alcohol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, cyclohexanediol, 2-bromo-2-nitropropane-1,3-diol, 2,2-dibromo-2-nitro ethanol, and 4-chlorophenyl-3-iodopropargyl formal;

formaldehyde, acetaldehyde, n-butylaldehyde, propionaldehyde, benzaldehyde, phthalaldehyde, alpha -bromocynnamaldehyde, and phenylacetaldehyde;

ketones;

acetonitrile, acrylonitrile, n-butylonitrile, malononitrile, phenylacetonitrile, benzonitrile, cyanopyridine, 2,2-dibromomethylglutaronitrile, 2,3,5,6-tetrachloroisophthalonitrile, 5-chloro-2,4,6-trifluoroisophthalonitrile, and 1,2-dibromo-2,4-dicyanobutane;

diethyl ether, dibutyl ether, tetrahydrofuran, dioxane, tetrahydropyran, dioxolane, and trioxane;

methyl acetate, ethyl acetate, butyl acetate, n-heptyl acetate, and bis-1,4-bromoacetoxy-2-butene;

benzene sulfone amide;

N-methyl formamide, N,N-dimethyl formamide, dicyane diamide, dibromonitrile propionamide, 2,2-dibromo-3-nitrilo propionamide, and N,N-diethyl-m-toluamide;

dichloromethane, chloroform, dichloroethylene, and tetrachloroethylene;

morphorine;

phenol, cresol, resorcinol, and p-chloro-m-cresol;

carboxylic acids and thiocarboxylic acids;

sulfaminic acid;

thiocarbamic acid;

thiosemicarbazide;

urea, phenylurea, diphenylurea, thiourea, phenylthiourea, diphenylthiourea, and N,N-dimethyldichlorophenylurea;

isothiourea;

sulfonylurea;

thiophenol, allyl mercaptan, n-butyl mercaptan, and benzyl mercaptan;

benzyl sulfide and butyl methyl sulfide;

dibutyl disulfide, dibenzyl disulfide, and tetramethylthiuram disulfide;

dimethyl sulfoxide, dibutyl sulfoxide, and dibenzyl sulfoxide;

dimethyl sulfone, phenyl sulfone, phenyl-(2-cyano-2-chlorovinyl) sulfone, hexabromodimethyl sulfone, and diiodomethylparatolyl sulfone;

benzene, toluene, and xylene;

butyl isocyanate, cyclohexyl isocyanate, and phenyl isocyanate;

methylene bisthiocyanate and methylene bisisothiocyanate;

tris(hydroxymethyl)nitromethane;

ammonia, methylamine, ethylamine, propylamine, butylamine, pentylamine, hexylamine, allylamine, hydroxylamine, ethanolamine, benzylamine, ethylenediamine, 1,2-propanediamine, 1,3-propanediamine, 1,4-butanediamine, 1,5-pentanediamine, 1,6-hexanediamine, diethylenetriamine, triethylenetetramine, tetraethylenepentamine, dipropylenediamine, N-N-dimethylethylenediamine, N,N'-dimethylethylenediamine, N,N-dimethyl-1,3-propanediamine, N-ethyl-1,3-propanediamine, trimethylhexamethylenediamine, alkyl-t-monoamine, menthanediamine, isophoronediamine, guanidine, and N-(2-hydroxypropyl)amino methanol;

cyclohexylamine, cyclohexanediamine, bis(4-aminocyclohexyl)methane, pyrrolidine, azetidine, piperidine;

piperadine, N-aminoethylpiperadine, N,N'-dimethylpiperadine, and pyrroline;

aniline, N-methylaniline, N,N-dimethylaniline, o-phenylenediamine, m-phenylenediamine, p-phenylenediamine, diaminodiphenylmethane, diaminodiphenyl sulfone, and m-xylenediamine;

imidazoles;

pyrrole, pyridine, picoline, pyrazine, pyridazine, pyrimidine, pyrazole, triazole, benzotriazole, triazine, tetrazole, purine, indole, quinoline, isoquinoline, carbazole, imidazoline, oxazole, piperine, pyrimidine, piridazine, benzimidazole, indazole, quinazoline, quinoxaline, phthalimide, adenine, cytosine, guanine, uracil, 2-methoxycarbonylbenzimidazole, 2,3,5,6-tetrachloro-4-methanesulfonylpyridine, 2,2-dithio-bis-(pyridine-1-oxide), N-methylpyrrolidone, 2-benzimidazole, methyl carbamate, sodium 2-pyridinethiol-1-oxide, hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine, hexahydro-1,3,5-triethyl-s-triazine, 2-methylthio-4-t-butylamino-6-cyclopropylamino-s-triazine, N-(fluorodichloromethylthio)phthalimide, 1-bromo-3-chloro-5,5-dimethylhydantoin, 2-methoxycarbonylbenzimidazole, and 2,4,6-trichlorophenylmaleimide;

furan, furfuryl alcohol, tetrahydrofurfuryl alcohol, furfurylamine, pyrane, coumarin, benzofuran, xanthene, and benzodioxane;

oxazole, isooxazole, benzoxazole, benzoisooxazole, 5-methyloxazolidine, 4-(2-nitrobutyl)morpholine, and 4,4'-(2-ethyl-2-nitrotrimethylene)dimorpholine;

thiophene, 3,3,4,4-tetrahydrothiophene-1,1-dioxide, 4,5-dichloro-1,2-dithiolan-3-one, 5-chrolo-4-phenyl-1,2-dithiolan-3-one, and 3,3,4,4-tetrachlorotetrahydrothiophene-1,1-dioxide;

thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole, and 2-thiocyanomethylbenzothiazole; and

1,3-dimethyl-2-imidazolidinone;

wherein:

the organic compound and phenol derivative are ~~reacted~~ mixed under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host compound and the organic compound being a guest compound; and

the host and guest compounds are non-covalently bonded to each other, and when the host and guest compounds are not bonded to each other, they are able to exist stably on their own.

37–38. (Canceled)

39. (Previously Presented) The clathrate compound according to any one of claims 35 and 36, wherein the clathrate compound is a crystalline clathrate compound.

40. (Currently Amended) The clathrate compound according to claim 35, wherein

R_1 and R_3 are $-SO_2-Y$;

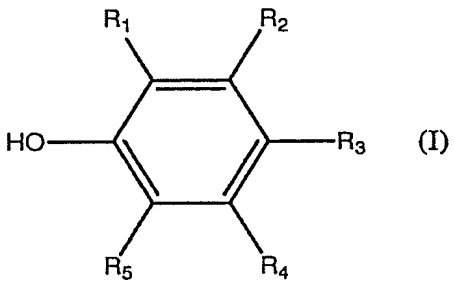
Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl.

41. (Currently Amended) The clathrate compound according to claim 36, wherein A is $-SO_2$.

42. (Withdrawn-Currently Amended) A method for producing a clathrate compound, comprising:

~~reacting~~ mixing a phenol derivative with an organic compound under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host; wherein:

the phenol derivative is represented by Formula (I):



(I)

wherein:

R_1 and R_3 are independently selected from $-SO_2-Y$ and $-CO-Z$;

R_2, R_4, and R_5 are independently selected from the group consisting of hydrogen, halogen, alkyl having 1 to 4 carbons, alkenyl having 2 to 4 carbons, alkoxy having 1 to 4 carbons, $-SO_2-Y$, and $-CO-Z$;

Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

Z is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, hydroxyl, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

the organic compound is selected from the group consisting of:

methanol, ethanol, isopropanol, n-butanol, n-octanol, 2-ethylhexanol, allyl alcohol, propargyl alcohol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, cyclohexanediol, 2-bromo-2-nitropropane-1,3-diol, 2,2-dibromo-2-nitro ethanol, and 4-chlorophenyl-3-iodopropargyl formal;

formaldehyde, acetaldehyde, n-butylaldehyde, propionaldehyde, benzaldehyde, phthalaldehyde, alpha -bromocynnamaldehyde, and phenylacetaldehyde;

ketones;

acetonitrile, acrylonitrile, n-butylonitrile, malononitrile, phenylacetonitrile, benzonitrile, cyanopyridine, 2,2-dibromomethylglutaronitrile, 2,3,5,6-tetrachloroisophthalonitrile, 5-chloro-2,4,6-trifluoroisophthalonitrile, and 1,2-dibromo-2,4-dicyanobutane;

diethyl ether, dibutyl ether, tetrahydrofuran, dioxane, tetrahydropyran, dioxolane, and trioxane;

methyl acetate, ethyl acetate, butyl acetate, n-heptyl acetate, and bis-1,4-bromoacetoxy-2-butene;

benzene sulfone amide;

N-methyl formamide, N,N-dimethyl formamide, dicyane diamide, dibromonitrile propionamide, 2,2-dibromo-3-nitrilo propionamide, and N,N-diethyl-m-toluamide;

dichloromethane, chloroform, dichloroethylene, and tetrachloroethylene;

morphorine;

phenol, cresol, resorcinol, and p-chloro-m-cresol;

carboxylic acids and thiocarboxylic acids;

sulfaminic acid;

thiocarbamic acid;

thiosemicarbazide;

urea, phenylurea, diphenylurea, thiourea, phenylthiourea, diphenylthiourea, and N,N-dimethyldichlorophenylurea;

isothiourea;

sulfonylurea;

thiophenol, allyl mercaptan, n-butyl mercaptan, and benzyl mercaptan;

benzyl sulfide and butyl methyl sulfide;

dibutyl disulfide, dibenzyl disulfide, and tetramethylthiuram disulfide;

dimethyl sulfoxide, dibutyl sulfoxide, and dibenzyl sulfoxide;

dimethyl sulfone, phenyl sulfone, phenyl-(2-cyano-2-chlorovinyl) sulfone, hexabromodimethyl sulfone, and diiodomethylparatolyl sulfone;

benzene, toluene, and xylene;

butyl isocyanate, cyclohexyl isocyanate, and phenyl isocyanate;

methylene bisthiocyanate and methylene bisisothiocyanate;

tris(hydroxymethyl)nitromethane;

ammonia, methylamine, ethylamine, propylamine, butylamine, pentylamine, hexylamine, allylamine, hydroxylamine, ethanolamine, benzylamine, ethylenediamine, 1,2-propanediamine, 1,3-propanediamine, 1,4-butanediamine, 1,5-pentanediamine, 1,6-hexanediamine, diethylenetriamine, triethylenetetramine, tetraethylenepentamine, dipropylenediamine, N-N-dimethylethylenediamine, N,N'-dimethylethylenediamine, N,N-dimethyl-1,3-propanediamine, N-ethyl-1,3-propanediamine, trimethylhexamethylenediamine, alkyl-t-monoamine, menthanediamine, isophoronediamine, guanidine, and N-(2-hydroxypropyl)amino methanol;

cyclohexylamine, cyclohexanediamine, bis(4-aminocyclohexyl)methane, pyrrolidine, azetidine, and piperidine;

piperadine, N-aminoethylpiperadine, N,N'-dimethylpiperadine, and pyrroline;

aniline, N-methylaniline, N,N-dimethylaniline, o-phenylenediamine, m-phenylenediamine, p-phenylenediamine, diaminodiphenylmethane, diaminodiphenyl sulfone, and m-xylenediamine;

imidazoles;

pyrrole, pyridine, picoline, pyrazine, pyridazine, pyrimidine, pyrazole, triazole, benzotriazole, triazine, tetrazole, purine, indole, quinoline, isoquinoline, carbazole, imidazoline, oxazole, piperine, pyrimidine, piridazine, benzimidazole, indazole, quinazoline, quinoxaline, phthalimide, adenine, cytosine, guanine, uracil, 2-methoxycarbonylbenzimidazole, 2,3,5,6-tetrachloro-4-methanesulfonylpyridine, 2,2-dithio-bis-(pyridine-1-oxide), N-methylpyrrolidone, 2-benzimidazole, methyl carbamate, sodium 2-pyridinethiol-1-oxide, hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine, hexahydro-1,3,5-triethyl-s-triazine, 2-methylthio-4-t-butylamino-6-cyclopropylamino-s-triazine, N-(fluorodichloromethylthio)phthalimide, 1-bromo-3-chloro-5,5-dimethylhydantoin, 2-methoxycarbonylbenzimidazole, and 2,4,6-trichlorophenylmaleimide;

furan, furfuryl alcohol, tetrahydrofurfuryl alcohol, furfurylamine, pyrane, coumarin, benzofuran, xanthene, and benzodioxane;

oxazole, isooxazole, benzoxazole, benzoisooxazole, 5-methyloxazolidine, 4-(2-nitrobutyl)morpholine, and 4,4'-(2-ethyl-2-nitrotrimethylene)dimorpholine;

thiophene, 3,3,4,4-tetrahydrothiophene-1,1-dioxide, 4,5-dichloro-1,2-dithiolan-3-one, 5-chrolo-4-phenyl-1,2-dithiolan-3-one, and 3,3,4,4-tetrachlorotetrahydrothiophene-1,1-dioxide;

thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole, and 2-thiocyanomethylbenzothiazole; and

1,3-dimethyl-2-imidazolidinone; and

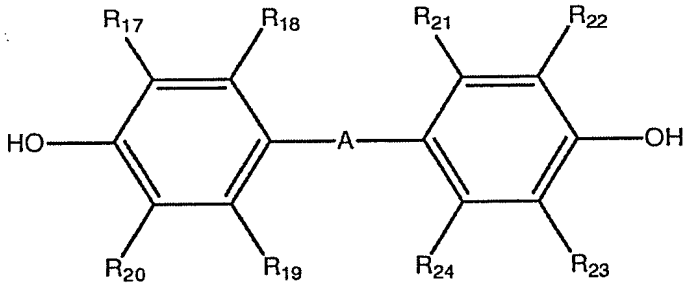
the organic compound and phenol derivative are ~~reacted~~ mixed under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host compound and the organic compound being a guest compound; and

the host and guest compounds are non-covalently bonded to each other, and when the host and guest compounds are not bonded to each other, they are able to exist stably on their own.

43. (Withdrawn-Currently Amended) A method for producing a clathrate compound, comprising:

~~reacting~~ mixing a phenol derivative with an organic compound under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host; wherein:

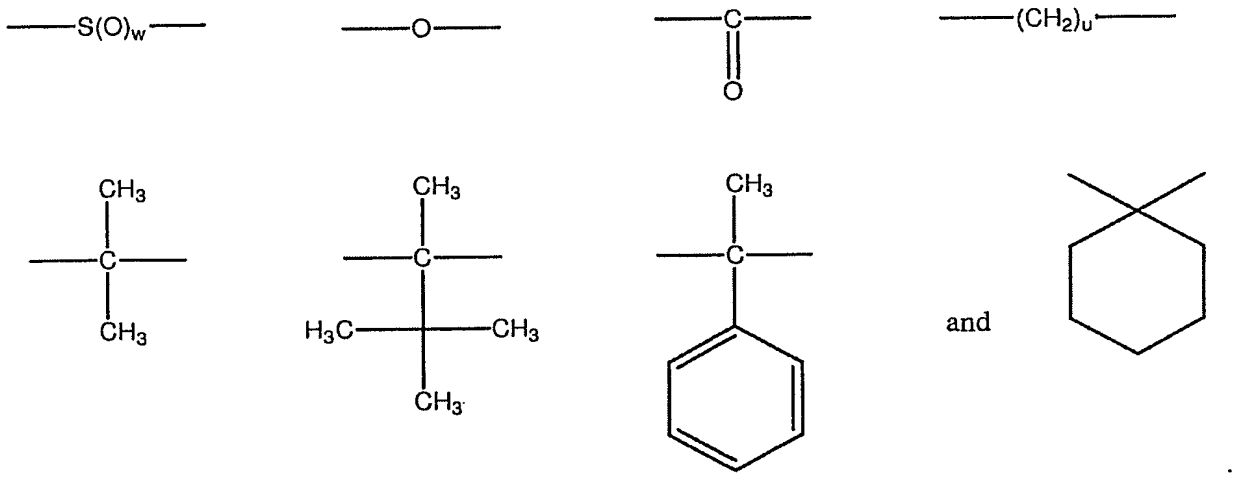
the phenol derivative is represented by Formula (IV):



(IV)

wherein:

A is selected from the group consisting of:



;

w is 0, 1, or 2;

u is 0 or 1;

R_{17} and R_{22} are independently selected from $-SO_2-Y$ and $-CO-Z$;

R_{18}-R_{21}, R_{23}, and R_{24} are independently selected from the group consisting of hydrogen, halogen, alkyl having 1 to 4 carbons, alkenyl having 2 to 4 carbons, alkoxy having 1 to 4 carbons, $-SO_2-Y$, and $-CO-Z$;

Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

Z is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, hydroxyl, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl;

the organic compound is selected from the group consisting of:

methanol, ethanol, isopropanol, n-butanol, n-octanol, 2-ethylhexanol, allyl alcohol, propargyl alcohol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, cyclohexanediol, 2-bromo-2-nitropropane-1,3-diol, 2,2-dibromo-2-nitro ethanol, and 4-chlorophenyl-3-iodopropargyl formal;

formaldehyde, acetaldehyde, n-butylaldehyde, propionaldehyde, benzaldehyde, phthalaldehyde, alpha -bromocynnamaldehyde, and phenylacetaldehyde;

ketones;

acetonitrile, acrylonitrile, n-butylonitrile, malononitrile, phenylacetonitrile, benzonitrile, cyanopyridine, 2,2-dibromomethylglutaronitrile, 2,3,5,6-tetrachloroisophthalonitrile, 5-chloro-2,4,6-trifluoroisophthalonitrile, and 1,2-dibromo-2,4-dicyanobutane;

diethyl ether, dibutyl ether, tetrahydrofuran, dioxane, tetrahydropyran, dioxolane, and trioxane;

methyl acetate, ethyl acetate, butyl acetate, n-heptyl acetate, and bis-1,4-bromoacetoxy-2-butene;

benzene sulfone amide;

N-methyl formamide, N,N-dimethyl formamide, dicyane diamide, dibromonitrile propionamide, 2,2-dibromo-3-nitrilo propionamide, and N,N-diethyl-m-toluamide;

dichloromethane, chloroform, dichloroethylene, and tetrachloroethylene;

morphorine;

phenol, cresol, resorcinol, and p-chloro-m-cresol;

carboxylic acids and thiocarboxylic acids;

sulfaminic acid;

thiocarbamic acid;

thiosemicarbazide;

urea, phenylurea, diphenylurea, thiourea, phenylthiourea, diphenylthiourea, and N,N-dimethyldichlorophenylurea;

isothiourea;

sulfonylurea;

thiophenol, allyl mercaptan, n-butyl mercaptan, and benzyl mercaptan;

benzyl sulfide and butyl methyl sulfide;

dibutyl disulfide, dibenzyl disulfide, and tetramethylthiuram disulfide;

dimethyl sulfoxide, dibutyl sulfoxide, and dibenzyl sulfoxide;

dimethyl sulfone, phenyl sulfone, phenyl-(2-cyano-2-chlorovinyl) sulfone, hexabromodimethyl sulfone, and diiodomethylparatolyl sulfone;

benzene, toluene, and xylene;

butyl isocyanate, cyclohexyl isocyanate, and phenyl isocyanate;

methylene bisthiocyanate and methylene bisisothiocyanate;

tris(hydroxymethyl)nitromethane;

ammonia, methylamine, ethylamine, propylamine, butylamine, pentylamine, hexylamine, allylamine, hydroxylamine, ethanolamine, benzylamine, ethylenediamine, 1,2-propanediamine, 1,3-propanediamine, 1,4-butanediamine, 1,5-pentanediamine, 1,6-hexanediamine, diethylenetriamine, triethylenetetramine, tetraethylenepentamine, dipropylenediamine, N-N-dimethylethylenediamine, N,N'-dimethylethylenediamine, N,N-dimethyl-1,3-propanediamine, N-ethyl-1,3-propanediamine, trimethylhexamethylenediamine, alkyl-t-monoamine, menthanediamine, isophoronediamine, guanidine, and N-(2-hydroxypropyl)amino methanol;

cyclohexylamine, cyclohexanediamine, bis(4-aminocyclohexyl)methane, pyrrolidine, azetidine, piperidine;

piperadine, N-aminoethylpiperadine, N,N'-dimethylpiperadine, and pyrroline;

aniline, N-methylaniline, N,N-dimethylaniline, o-phenylenediamine, m-phenylenediamine, p-phenylenediamine, diaminodiphenylmethane, diaminodiphenyl sulfone, and m-xylenediamine;

imidazoles;

pyrrole, pyridine, picoline, pyrazine, pyridazine, pyrimidine, pyrazole, triazole, benzotriazole, triazine, tetrazole, purine, indole, quinoline, isoquinoline, carbazole, imidazoline, oxazole, piperine, pyrimidine, piridazine, benzimidazole, indazole, quinazoline, quinoxaline, phthalimide, adenine, cytosine, guanine, uracil, 2-methoxycarbonylbenzimidazole, 2,3,5,6-tetrachloro-4-methanesulfonylpyridine, 2,2-dithio-bis-(pyridine-1-oxide), N-methylpyrrolidone, 2-benzimidazole, methyl carbamate, sodium 2-pyridinethiol-1-oxide, hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine, hexahydro-1,3,5-triethyl-s-triazine, 2-

methylthio-4-t-butylamino-6-cyclopropylamino-s-triazine, N-(fluorodichloromethylthio)phthalimide, 1-bromo-3-chloro-5,5-dimethylhydantoin, 2-methoxycarbonylbenzimidazole, and 2,4,6-trichlorophenylmaleimide;

furan, furfuryl alcohol, tetrahydrofurfuryl alcohol, furfurylamine, pyrane, coumarin, benzofuran, xanthene, and benzodioxane;

oxazole, isooxazole, benzoxazole, benzoisooxazole, 5-methyloxazolidine, 4-(2-nitrobutyl)morpholine, and 4,4'-(2-ethyl-2-nitrotrimethylene)dimorpholine;

thiophene, 3,3,4,4-tetrahydrothiophene-1,1-dioxide, 4,5-dichloro-1,2-dithiolan-3-one, 5-chrolo-4-phenyl-1,2-dithiolan-3-one, and 3,3,4,4-tetrachlorotetrahydrothiophene-1,1-dioxide;

thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole, and 2-thiocyanomethylbenzothiazole; and

1,3-dimethyl-2-imidazolidinone;

the organic compound and phenol derivative are ~~reacted~~ mixed under conditions sufficient to form the clathrate compounds having the phenol derivative as a constituent, the constituent being a host compound and the organic compound being a guest compound; and

the host and guest compounds are non-covalently bonded to each other, and when the host and guest compounds are not bonded to each other, they are able to exist stably on their own.

44–45. (Canceled)

46. (Previously Presented) The clathrate compound according to claim 41, wherein R_{17} and R_{22} are $-SO_2-Y$; and

Y is selected from the group consisting of alkyl having 1 to 8 carbons, alkenyl having 2 to 8 carbons, alkoxy having 1 to 6 carbons, substituted amino, substituted cycloalkyl, substituted phenyl, and substituted aralkyl.

47. (Previously Presented) The clathrate compound according to claim 35 or 36, wherein the organic compound is selected from the group consisting of:

acetone, methyl ethyl ketone, diethyl ketone, dibutyl ketone, methyl isobutyl ketone, cyclohexanone, acetyl acetone, and 2-bromo-4'-hydroxyacetophenone;

diethyl ether, dibutyl ether, tetrahydrofuran, dioxane, tetrahydropyran, dioxolane, and trioxane;

N-methyl formamide, N,N-dimethyl formamide, dicyane diamide, dibromonitrile propionamide, 2,2-dibromo-3-nitrilo propionamide, and N,N-diethyl-m-toluamide;

formic acid, acetic acid, propionic acid, oxalic acid, citric acid, adipic acid, tartaric acid, benzoic acid, phthalic acid, and salicylic acid;

dimethyl sulfoxide, dibutyl sulfoxide, and dibenzyl sulfoxide;

imidazoles;

pyrrole, pyridine, picoline, pyrazine, pyridazine, pyrimidine, pyrazole, triazole, benzotriazole, triazine, tetrazole, purine, indole, quinoline, isoquinoline, carbazole, imidazoline, pyrroline, oxazole, piperine, pyrimidine, piridazine, benzimidazole, indazole, quinazoline, quinoxaline, phthalimide, adenine, cytosine, guanine, uracil, 2-methoxycarbonylbenzimidazole, 2,3,5,6-tetrachloro-4-methanesulfonylpyridine, 2,2-dithio-bis-(pyridine-1-oxide), N-methylpyrrolidone, 2-benzimidazole, methyl carbamate, sodium 2-pyridinethiol-1-oxide, hexahydro-1,3,5-tris(2-hydroxyethyl)-s-triazine, hexahydro-1,3,5-triethyl-s-triazine, 2-methylthio-4-t-butylamino-6-cyclopropylamino-s-triazine, N-(fluorodichloromethylthio)phthalimide, 1-bromo-3-chloro-5,5-dimethylhydantoin, 2-methoxycarbonylbenzimidazole, and 2,4,6-trichlorophenylmaleimide;

thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole and 2-thiocyanomethylbenzothiazole; and

1,3-dimethyl-2-imidazolidinone.

48. (Previously Presented) The clathrate compound according to claim 47, wherein the organic compound is selected from the group consisting of imidazoles, thiazole, benzothiazole, 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, 4,5-dichloro-3-n-octylisothiazolin-3-one, 2-octyl-4-isothiazolin-3-one, 1,2-benzisothiazolin-3-one, 2-thiocyanomethylbenzothiazole, 2-(4-thiazolyl)benzimidazole, and 2-thiocyanomethylbenzothiazole.

49. (Previously Presented) The clathrate compound according to claim 48, wherein the imidazoles are imidazole, 2-methylimidazole, 2-ethylimidazole, 2-isopropylimidazole, 2-n-propylimidazole, 2-ethyl-4-methylimidazole, 1-benzyl-2-methylimidazole, 2-undecyl-1H-imidazole, 2-heptadecyl-1H-imidazole, 2-phenyl-1H-imidazole, 4-methyl-2-phenyl-1H-imidazole, or 1-benzyl-2-methylimidazole.